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EXAMINER	
TRAN, CON P	

ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
03/21/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/581,358	RIEDEL ET AL.	
	Examiner	Art Unit	
	CON P. TRAN	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2011*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 25 is objected to because of the following informalities: Claim 25 depends from Claim 1 which is a cancelled claim. For purpose of examination, Examiner assumes Applicant intends to claim that Claim 25 depends from Claim 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 13-26** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cromer et al. U.S. Patent Application Publication 20020159611 (hereinafter, "Cromer") in view of Freeman et al U.S. Patent 6970568 (hereinafter, "Freeman"), and further in view of Cohen et al. U.S. Patent Application Publication 20030031333.

Regarding **claim 13**, Cromer teaches *an audio system* (10, Fig. 1, see para [0011]; 100, Fig. 3, para [0024]) *providing a dynamic sound field adaptation to follow a*

listeners position (the user 12 may change locations with the remote control and have the sound system 100, Fig. 3 automatically reconfigure itself for the change of position, see para [0024]), the audio system comprising:

means (including radio transceiver 114, provides each of the speakers 112a-e with a radio transceiver 116a-e, and provides the audio receiver 104 with two fixed transceiver modules 106a-106b, para [0019]) *for tracking positions of a personal devices* (i.e., remote control 108, Fig. 3; the user 12 may change locations with the remote control and have the sound system 100 reconfigure itself for the change of position, see para [0024]) *to produce a current position of each personal device* (using a triangulation, para [0019]; in other words, at each different location, the personal device is considered different one, see Cromer para [0024]); and

means for re-calibrating a sound field an optimize speaker delays *based on current positions of the personal devices* (the remote control 108, Fig. 3 then reports these distances to the audio receiver 104, Fig. 3 which then uses the new distances to program the correct delays for the digital audio encoding system, para [0024]; automatically optimize speaker delays for a user's location, para [0014]; in other words, at each different location, the personal device is considered different one, see Cromer para [0024]).

Cromer discloses using triangulation to find a position or location (see Cromer, [0019]). However, Cromer does not explicitly disclose *means for determining relative positions of at least one sound emitting component of the audio system with respect to other sound emitting components of the audio system.*

Freeman discloses an apparatus and method for analyzing an electro-acoustic system (see Title) in which it is necessary to determine the relative position of the multiple loudspeakers; the relative position of the multiple loudspeakers may be determined by the relative time delay of the acoustic signals of each loudspeaker (see Freeman, col. 2, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the apparatus and method for analyzing an electro-acoustic system taught by Freeman with the an audio system of Cromer such that to obtain *a relative location determination means for determining relative positions of at least all sound emitting components of the audio system with respect to each other* as claimed order to minimize measurement time as suggested by Freeman in Abstract.

However, Cromer in view of Freeman does not explicitly disclose *a sweet spot of the sound field based on the current positions of the personal devices*; and *means for detecting personal devices associated with at least one user.*

Cohen discloses a system and method for establishing a listening sweet spot within a listening space (see Cohen, para [0001]) including speakers (12, 13, 14, 15, 16) remote position sensor (27, Figs. 7, 8); the listener (11, Fig. 7) is holding a remote position sensor (27, Fig. 7); causing the sweet spot to shift from its original location to the listening position (para [0046], [0049], see Cohen); simultaneously transmit multiple "pings" from each of the multiple speakers, each with an unique frequency, phase or amplitude; the processing unit will be capable of identifying each of the multiple "pings" and simultaneously processing the location of each of the speakers ([0052], see Cohen;

in other words, at each chosen sweet spot, the personal device is considered different one, see Cohen, para [0054]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the system and method for establishing a listening sweet spot taught by Cohen with the an audio system of Cromer in view of Freeman such that to obtain *a sweet spot of the sound field is placed at a current position of the personal device*; and *a personal device detection means for detecting a personal device belonging to a user* as claimed for purpose of optimization of three-dimensional audio listening as suggested by Cohen in Abstract.

Regarding **claim 14**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the means for determining, the means for detecting, the means for tracking, and the means for re-calibrating each further include means for communicating via a network (i.e., digital interconnect format 28, Fig. 1, such as S/PDIF (IEC60958), see Cromer para [0011]).

Regarding **claim 15**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 14. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the network comprises at least in part implemented in a form of a wireless communication network (radio frequency, see Cromer para [0019]).

Regarding **claim 16**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 14. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein that the network comprises at least in part a wired communication network (i.e., S/PDIF (IEC60958), see Cromer para [0011]).

Regarding **claim 17**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 14. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the audio system includes physically-distinguished unit (i.e., known configuration position, see Cromer para [0024], each physically-distinguished unit of the audio system includes means for announcing membership attribute data representing an identity of physically-distinguished unit (i.e., known configuration position, see Cromer para [0024]).

Regarding **claim 18**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising:

means for arbitrating a location of the sweet spot among the current positions of the personal devices, according to a set of criteria (difference parameters measured, see Cohen, Fig. 10, para [0055]).

Regarding **claim 19**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 18. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches wherein the set of criteria is to includes criteria that positions the sweet spot for covering a maximum number of the personal devices (i.e., one is a maximum number, see Cromer, Fig. 3, para [0024], in other words, at each different overlapping sweet spot, the personal device is considered different one, see Cromer para [0024]).

Regarding **claim 20**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 18. Cromer in view of Freeman and further in view of Cohen, as modified, further teaches audio system according to claim 18, wherein the set of criteria includes criteria that positions the sweet spot to a preferred personal device of the personal devices (i.e., the listener is holding a remote position sensor, see Cohen, Fig. 7, para [0046], in other words, at each chosen sweet spot, the personal device is considered different one, see Cohen, para [0054]).

Regarding **claim 21**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising means for detecting acoustically interfering items that interfere with sound emitting components of the audio system (analysis of the received signal can provide information on room acoustics, reflective surfaces, see Cohen, para [0053]).

Regarding **claim 22**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising means for restoring preferred settings of the audio system (parameters stored by the manufacturer in the system's memory, see Cohen, para [0064]).

Regarding **claim 23**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising display means for displaying positions of sound emitting components of the audio system, and/or the current position of the personal devices, and/or a position of the current sweet spot (display 54, Fig. 1, see Freeman, col. 10, lines 28-33; at each different sweet spot, the personal device is considered different one, see Cromer para [0024]).

Regarding **claim 24**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches further comprising means for switching between at least a mode in which the sweet spot follows a listener and a mode in which the sweet spot is kept in a fixed position (configuration button on the remote control, see Cromer, para [0025]).

Regarding **claim 25**, Cromer in view of Freeman and further in view of Cohen teaches the audio system according to claim 13. Cromer in view of Freeman and further in view of Cohen, as modified, teaches wherein the means for tracking further includes means for extrapolating a most probable position of the personal device (i.e., from known configuration position, see Cromer para [0024]; sound manipulation also reshapes the sweet spot and restores the optimal listening experience, see Cohen para [0046]).

Regarding **claim 26**, this apparatus has similar limitations as the Claim 13. Therefore it is interpreted and rejected for the reasons set forth in the rejection of Claim 13.

Response to Arguments

4. Applicants' arguments with respect to claims 13-26 have been considered but are moot in view of the new grounds of rejection.

Regarding Applicants' arguments that "Cromer does not describe that the multi-dimensional sound system (10) includes more than one remote control (16) or tracks positions of remote controls", examiner respectfully disagrees since at each different location, the personal device is considered different one (see Cromer para [0024]).

Regarding Applicants' arguments that Freeman does not teach or suggest any "means for tracking positions of the personal devices" or "means for re-calibrating a

sound field"; and that Cohen does not describe "tracking positions of personal devices or re-calibrating a sound field", examiner respectfully disagrees since in determining the unobviousness of claim invention, examiner formulated rejection based on combinations of references, Cromer in view of Freeman and further in view of Cohen. Thus one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. As presented above in the Office Action, Cromer in view of Freeman and further in view of Cohen teaches the claimed tracking positions of personal devices and the claimed re-calibrating a sound field.

Conclusion

5. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CON P. TRAN whose telephone number is (571)272-7532. The examiner can normally be reached on M - F (08:30 AM - 05:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor VIVIAN C. CHIN can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/CPT/
March 14, 2011

/VIVIAN CHIN/

Supervisory Patent Examiner, Art Unit 2614